



**BURLINGTON
ENVIRONMENTAL**

A Philip Environmental Company

WA 2917 17a
RECEIVED
JAN 13 1995
RCRA PERMITS SECTION

1/13/1995

Certified Mail

FILE COPY

January 13, 1995

Mr. Galen Tritt
Washington Department of Ecology, NWRO
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

Re: Pier 91 Interim Status Closure Plan

Dear Mr. Tritt:

This letter responds to your November 2, 1994 letter regarding Burlington's Pier 91 Facility Interim Status Closure Plan. The revised interim status closure plan is attached (see summary of revisions below). The certification statement required by WAC 173-303-810(12) and (13) is also provided. Only revised sections have been attached (Closure Plan Text, Appendix 6, and Appendix 7); all other appendices remain unchanged. Please insert these revisions into the July 1, 1994 version.

The plan has been revised to reflect the tank decontamination and removal work that has been completed since the July 1, 1994 submittal. Specifically, Tanks 115-118 and 165 were emptied, decontaminated, certified clean by an independent P.E. as of August 1994. These tanks were removed from the facility for salvage as scrap metal. In addition, Tanks 109-111 have been emptied, decontaminated, certified clean by an independent P.E., and are currently in non-DW service. Certifications of tank decontamination for these tanks is attached for your review. Closure costs for inventory elimination and decontamination of these tanks have been removed from the plan. Decontamination procedures on Tank 112 are ongoing, and the certification of decontamination will be sent to Ecology upon completion. Since decontamination has not been completed, costs for inventory elimination and decontamination of Tank 112 are still included in the plan.

Response to Ecology's November 2, 1994 Comments

Item 1)

Under the Part B Permit, Tanks 109-112 were to be upgraded and renumbered Tanks 2705-2708 in order to remain in DW service. Burlington decided not to upgrade these tanks and has removed them from DW service. Since these tanks were not upgraded, Tanks 2705-2708 (as described in the Part B) never existed. As such, Burlington feels that closure of Tanks 109-112 under interim status is appropriate. A Part B permit modification will be submitted under separate cover to reflect the fact that Tanks 2705-2708 will not be upgraded for DW service.

Item 2)

The 1988 RFA report includes statements attributed to the Pier 91 plant manager indicating that hazardous wastes were stored in the warehouse for at least one year. As stated in our earlier response to this issue, Burlington contends that this statement is one of numerous factual errors in the draft RFA report. It is possible that there was a misunderstanding between the inspectors and the plant manager regarding drum contents. The warehouse was used to store drums of dangerous waste for less than ninety days, but product drums stored in the same area (in separate stacks) were often stored for more than ninety days.

Mr. Galen Tritt
January 13, 1995
Page 2

Although the warehouse has always been operated as a less than ninety day container storage area, providing historical documentation to prove it would be very difficult. Ecology personnel have inspected this area numerous times, and the issue of containers being stored for over ninety days has not been raised. Also, as you state in your letter, there are no major stains, cracks or other indications of spillage apparent in the warehouse. Based on these considerations, Burlington feels it is not appropriate to require inclusion of the warehouse in either the interim or final status closure plans.

Item 3)

Consistent with recent modifications to the Pier 91 Part B closure plan (PRMOD6-1), the interim status unit costs and closure cost estimates have been updated to reflect current costs for treatment, transport, disposal, PPE, and sample analysis based on prices obtained from vendors. Prices for third-party labor costs have remained costs found in the Guidance Manual, inflated from 1986 dollars using appropriate inflation factors.

Item 4)

Section 6.0 has been revised to include wording regarding contingency for a post closure plan.

If you have any questions, please feel free to call me at 227-7527.

Sincerely,



Keith Lund
Senior Environmental Compliance Specialist

Attachments

cc: Gerald Lenssen, WDOE-HQ
Carrie Sikorski, EPA Region 10



BURLINGTON ENVIRONMENTAL

A Philip Environmental Company

January 13, 1995

Pier 91 Facility Interim Status Closure Plan

As required by WAC 173-303-810(12) and (13), Burlington Environmental Inc. is providing the following certification statement for the Pier 91 Facility Interim Status Closure Plan submitted to the Washington Department of Ecology on January 13, 1995.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Marlys Palumbo

Vice President and Corporate Counsel

1/13/95
Date

CLOSURE OF INTERIM STATUS AREA

**BURLINGTON ENVIRONMENTAL INC.
PIER 91 FACILITY**

**In Response to Section IV.F.1,
Washington Department of Ecology
Permit No. WAD 000812917**

October 23, 1992

**Revised: January 29, 1993
 September 13, 1993
 July 1, 1994
 January 13, 1995**

CLOSURE OF INTERIM STATUS AREA

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 Introduction	1
1.1 Facility Description	1
1.2 Closure Performance Standards	2
2.0 Tank Histories and Rationale for Closure of Units	5
2.1 Product Storage Tanks in PNO Service	5
2.2 Decontaminated Tanks in Non-Dangerous Waste Service	6
2.3 Tanks Decontaminated and Removed	7
2.4 Tanks Requiring Completion of Decontamination	7
3.0 Maximum Waste Inventory	7
4.0 Closure Schedule	7
5.0 Closure Activities	8
5.1 Tank System Closure Procedure	8
5.2 Inventory Elimination	8
5.3 Decontamination Procedures	9
5.4 Sampling and Analysis	12
5.5 Soil and Groundwater Cleanup	14
6.0 Post-Closure Plan	14
7.0 Closure Cost Estimates	14
7.1 Regulatory Requirements	14
7.2 Unit Costs for Closure Activities	15
7.3 Inventory Elimination Costs	16
7.4 Facility Decontamination Costs	16
7.5 Sampling and Analytical Costs	18

8.0	Financial Assurance Mechanism	18
9.0	Liability Requirements	18

LIST OF APPENDICES

APPENDIX

Appendix 1	Tank Contents from Decontamination to Present
Appendix 2	1981 Burlington/PNO Sublease
Appendix 3	1978 Burlington/PNO Sublease
Appendix 4	Tank Decontamination Documentation
Appendix 5	Tank Cleaning and Decontamination Procedures, Manifests and Lab Analysis for Tank Sludges
Appendix 6	Unit Costs and Assumptions
Appendix 7	Interim Status Closure Cost Calculations for Maximum Waste Inventory

LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
Table 1.0	Cost Estimates Reflecting Interim Status Closure at Maximum Waste Inventory	15

LIST OF FIGURES

<u>FIGURE</u>		<u>PAGE</u>
Figure 1.0	Pier 91 Facility	3

1.0 INTRODUCTION

1.1 Facility Description

USEPA/Ecology Facility Identification Number: WAD 000812917

Operator's Name: Burlington Environmental Inc.
Address: 1011 Western Ave., Suite 700
Seattle, WA. 98104
Telephone Number: (206) 223-0500

Plant Name: Burlington Environmental Inc.
Pier 91 Facility
Address: 2001 West Garfield Street
Pier 91, Port of Seattle
Seattle, WA. 98119
Telephone Number: (206) 284-2450

The Pier 91 facility consists of an approximately 4-acre site located on the northern waterfront of Elliott Bay. More specifically, it is located within approximately one quarter mile of Smith Cove and the Smith Cove Waterway, both of which are part of Elliott Bay. This facility was owned by Texaco in the 1920's. Texaco transferred ownership to the Navy during World War II. The facility was operated by the City of Seattle prior to being leased in 1971 by Chemical Processors, Inc. ["Chempro", now Burlington Environmental Inc. ("Burlington")].

The Pier 91 tank facility, including tanks, containment, pipelines, and property, is now owned by the Port of Seattle. A major portion of the site is subleased to Pacific Northern Oil Corporation ("PNO") by Burlington. The PNO portion of the facility is used for storage and blending of residual fuel oil and diesel fuel (product). The original RCRA Part A application submitted in 1980 by Chempro included all the tanks located at the Pier 91 facility, including tanks subleased to PNO. As such, the whole facility was covered under interim status. The Part B area includes only a portion of the interim status area.

Burlington's Pier 91 facility primarily handles four types of waste:

- Dirty bilge water from barge and ship cleaning operations;
- Pretreated oily wastes from other Burlington facilities;
- Oily industrial wastewater, not otherwise specified; and
- Industrial machine coolants.

All wastes are delivered to Pier 91 in barges or tank trucks. These materials are pumped into the appropriate tanks. Storm or rain water suitable for discharge to the Metro sewer system (POTW permitted) is collected by drains connected to the catchment basin. Industrial wastewater discharged from the plant is collected and treated on a batch basis. The discharge tank is sampled after each treatment; the samples are composited and analyzed for applicable pollutants. The Pier 91 facility only discharges water that is within the limits of its POTW discharge permit.

1.2 Closure Performance Standards

This plan addresses Section IV.F.1. of the RCRA Part B Permit issued by the Washington Department of Ecology. Section IV.F.1. requires Burlington to submit a closure plan for the interim status area as defined in Attachment MM of the Part B permit. The following plan addresses the waste disposal, tank and ancillary equipment decontamination, and decontamination of the concrete containment area within the interim status area that is not covered under final Part B status.

Figure 1.0 shows the location of all tanks at the Pier 91 facility.

Closure activities at the Burlington Pier 91 facility are designed to meet Federal and State closure performance standards. The closure activities will:

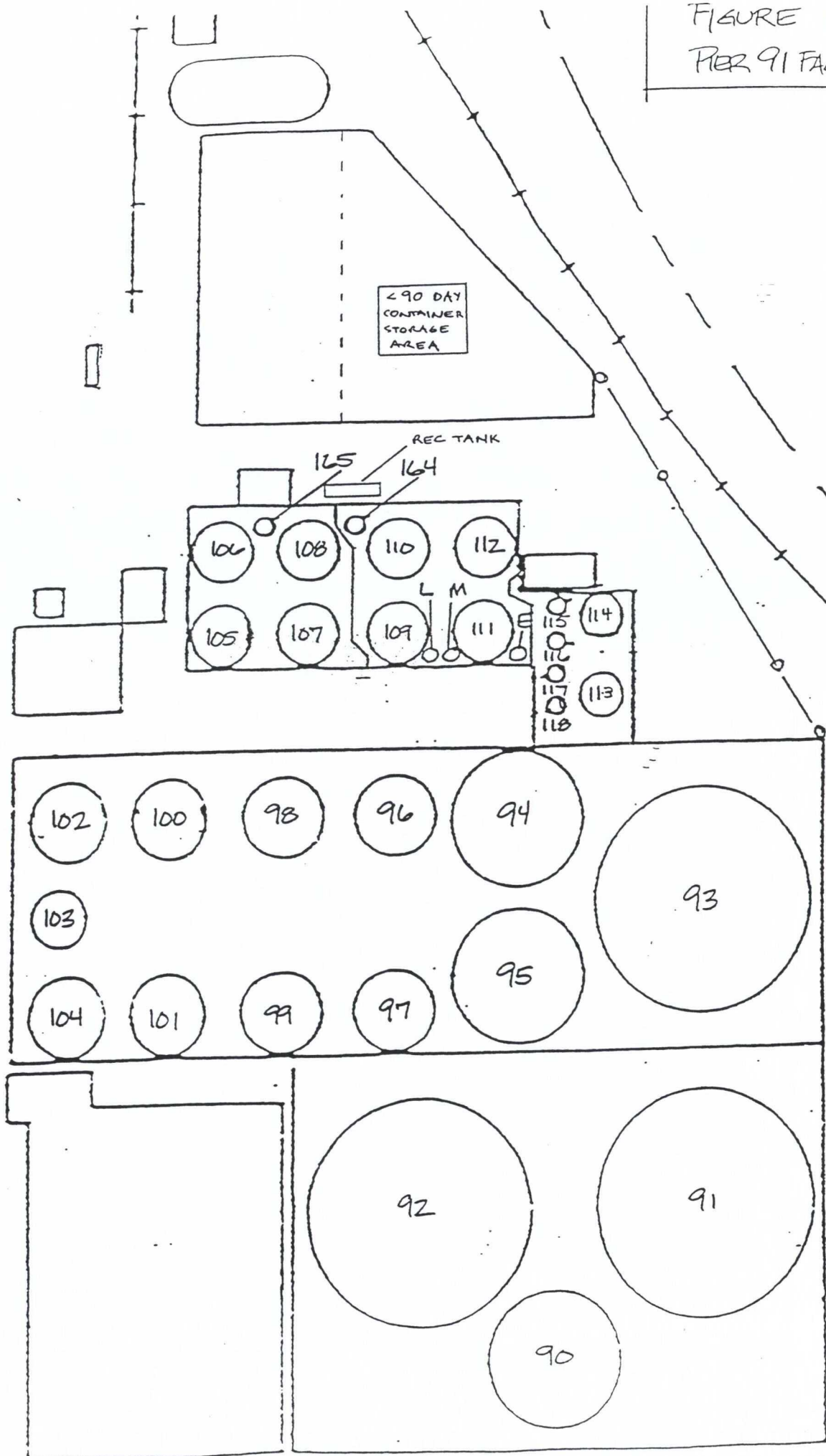
- Minimize the need for further maintenance;
- Control, minimize or eliminate, to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, or dangerous waste decomposition products to the ground or surface waters or to the atmosphere; and
- Comply with the closure requirements of Subpart G of 40 CFR 265 and WAC 173-303-400(3)(c)(ix).

In general these standards will be met by removing all regulated waste from the interim status portion of the facility not covered under final (Part B) status and by decontaminating or removing all contaminated equipment, containment system components and structures.

Other closure policies and procedures follow:

- A copy of the approved Interim Status Closure Plan (hereafter referred to as the Closure Plan), and subsequent authorized amendments, will be maintained at the facility until interim status closure is complete and certified.
- Changes in facility plans, operations or scheduling may result in an amended Closure Plan. Amended versions will be submitted to the Washington Department of Ecology ("Ecology") with a written request to authorize a change to the approved Closure Plan.
- During interim status closure all dangerous wastes within the facility and dangerous waste management units will be processed in the same manner as they would be under normal operating circumstances.
- During closure, dangerous wastes and process residues will continue to be segregated and stored according to their compatibility in the storage tanks and the temporary container storage area.

FIGURE 1.0
PIER 91 FACILITY



- Burlington intends to use trained employees for closing the various units. However, facility closure cost estimates are based on third party costs.
- At all times during closure activities the appropriate standard operating procedures for worker health and safety will be followed.
- All dangerous waste storage and treatment tanks and associated equipment, piping and instrumentation covered under this Closure Plan will be either decontaminated, salvaged, dismantled and disposed of at an off-site RCRA-permitted facility, or placed into service for non-regulated materials.
- All mobile or fixed equipment that has been used to process or handle dangerous wastes will be cleaned, decontaminated and re-used or salvaged or, if necessary, disposed of at an off-site RCRA-permitted facility.
- The requirements of the Department of Transportation ("DOT") 49 CFR will be followed for transporting any dangerous wastes or other equipment or materials off-site.
- Where removal or decontamination of dangerous waste management units, equipment, dangerous wastes or residues, or other materials is done, then the removal or decontamination will assure that the levels of dangerous waste or dangerous waste residues do not exceed:
 - 1) Background environmental levels, for any waste managed at the facility, which either is listed under discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and
 - 2) The designation limits for toxic, persistent, or carcinogenic dangerous wastes (WAC 173-303-100), for any dangerous waste managed at the facility which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.
- Clean-up levels developed under the Model Toxics Control Act ("MTCA") clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.
- Decontamination residues and contaminated media generated from closure activities will be handled as required by WAC 173-303-170 through 230.
- An independent registered professional engineer will monitor all subsequent closure activities to ensure they are conducted in accordance with the approved Closure Plan.
- Closure activities to be monitored by the independent engineer include inventory elimination, tank system decontamination, and secondary containment (concrete) decontamination. The engineer will inspect the facility at least weekly for approximately 4-6 hours. These inspections will be part of the facility's operating record.
- Burlington will submit to Ecology certification that closure of the interim status portion of the facility not covered under the final permit has been conducted in accordance with the specifications of the approved Closure Plan. This certification will be signed by both Burlington and the independent registered professional engineer. The certification will be submitted to Ecology within 60 days of completion of closure of interim status areas.

- Per 40 CFR 265.143(h), within 60 days after receiving certifications from Burlington and the independent registered professional engineer that closure has been completed in accordance with the approved Closure Plan, Ecology will notify Burlington in writing that Burlington is no longer required to maintain financial assurance for closure of this portion of the facility (interim-status area aboveground which is not covered by the final Part B permit), unless Ecology has reason to believe that final closure has not been in accordance with the approved closure plan. Ecology shall provide Burlington a detailed written statement of any such reason to believe that closure has not been in accordance with the approved closure plan.

2.0 TANK HISTORIES AND RATIONALE FOR CLOSURE OF UNITS

There are four categories of tanks that are addressed by this closure plan:

- Product storage tanks in PNO service (Tanks 91, 92, 93, 95, 101-104, and 113). Burlington is requesting administrative closure under interim status for these tanks.
- Decontaminated tanks in Burlington non-dangerous waste service (Tanks 94, 109-111, and 114) and PNO product storage service (Tanks 90, 96-100, and 105-108).
- Decontaminated tanks that have been removed (Tanks 115-118 and 165).
- Tanks requiring completion of decontamination (Tank 112).

Appendix 1 contains information regarding the contents of decontaminated tanks from the date of decontamination to the present. Appendix 4 contains a summary of tank decontamination procedures.

2.1 Product Storage Tanks in PNO Service

a. Tanks 91, 92, 93, 101, 102, 103, and 104

Tank 91 has been operated by PNO since 12/1/73 and has been used exclusively for product such as bunker fuel oil. Tank 92 has been operated by PNO since January 1974 and has been used exclusively for product such as fuel oil, bunker fuel and boiler fuel. Prior to 1974, Tank 92 was rented by Boeing for use as a storage tank for fuel oil. Tank 93 has been operated by PNO since 1976 and has been used exclusively for product such as bunker fuel and marine diesel oil. Prior to 1976, Boeing rented Tank 93 for use as a storage tank for fuel oil.

Tanks 101 and 102 have been operated by PNO since 1973 (with Boeing intermittently using the tanks in 1974-75). These tanks have been used exclusively for product such as diesel, marine diesel oil and fuel oil. Tank 103 has been operated exclusively by PNO since 1978 for storage of product such as fuel oil, boiler fuel and marine diesel fuel. Prior to this, Chempro did not formally lease this tank to PNO but operated the tank on PNO's behalf for product storage. Tank 104 has been operated exclusively by PNO for product storage since mid-1976. Prior to this, Chempro operated this tank on behalf of both PNO and Boeing for use as a product storage tank for diesel and marine diesel oil.

Equipment closure and decontamination documentation is not provided for Tanks 91, 92, 93, 101, 102, 103, and 104 as these tanks have never been utilized for dangerous waste service. Furthermore, these tanks have been operated by or on behalf of entities other than Burlington for use as product storage tanks. Burlington is requesting that these tanks be administratively closed under interim status.

b. Tank 95

The operation of Tank 95 has alternated between PNO and Chempro since 1973. Throughout this time period, the material stored in this tank consisted of various grades of product and some used lube oils and reclaimed fuel oil, all of which are not regulated under WAC 173-303 as dangerous wastes. During the period between 1974 and 1976, Chempro frequently operated this tank on PNO's behalf. Burlington is requesting that Tank 95 be administratively closed under interim status as it has never been utilized for dangerous waste service. Equipment closure and decontamination documentation are not provided for Tank 95 for reasons stated previously.

c. Tank 113

Chempro had almost sole operation of Tank 113 between 1973 and 1981. Tank 113 was used to store used lube oil, diesel and boiler fuel, in most cases on behalf of PNO, all of which was not regulated as dangerous waste under WAC 173-303. During this time period, PNO would infrequently take over operation of this tank and store product such as bunker fuel oil and diesel in the tank. Since 1981, this tank has been subleased from Burlington by PNO (see Appendix 2) for use as a product storage tank. Equipment closure and decontamination documentation have not been provided for this tank as it was never utilized for dangerous waste service and has been either operated by or on behalf of PNO since 1974. Burlington requests that this tank be administratively closed under interim status.

d. Summary of Product Storage Tanks in PNO Service

Since 1981, Tanks 91, 92, 93, 95, 101, 102, 103, 104, and 113 have been used exclusively for virgin bunker/diesel oil purchased and sold by PNO. The PNO lease of May 1981 is provided in Appendix 2 as documentation that these tanks are in PNO fuel and oil product service. Also provided as Appendix 3 is the 1978 lease between Chempro and PNO which shows that PNO operated and had control over Tanks 91, 92, 93, 94, 101, 102, and 104 for the years 1978 to 1981.

As mentioned above, equipment closure and decontamination documentation have not been provided for these Tanks 91, 92, 93, 95, 101, 102, 103, 104, and 113 as they have not been utilized for dangerous waste service as delineated under WAC 173-303. Burlington is requesting that these tanks be administratively closed under interim status.

2.2 Decontaminated Tanks in Non-Dangerous Waste Service

a. Tanks 90, 94, 96-100, 105-108, and 114

Tanks 90, 94, 96-100, 105-108, and 114 (and associated ancillary equipment) were decontaminated in accordance with the procedures outlined in Section 5.0 and Appendix 5. Since the decontamination procedures occurred prior to the April 1991 amendments to WAC 173-303-400(3)(c)(ix), an independent professional engineer was not required to certify closure of these units. The decontamination procedures conducted met the performance standard for clean closure of these tanks and associated ancillary equipment. Decontamination of the secondary containment systems associated with these tanks is included in this plan.

Burlington retains operational control of Tanks 94 and 114, while Tanks 90, 96-100, and 105-108 have been turned over to PNO.

b. Tanks 109-111

Tanks 109-111 (and associated ancillary equipment) were decontaminated in 1994 following the procedures described in Section 5.0 and Appendix 5. An independent professional engineer certified the closure of these tanks. These tanks remain in non-DW service under Burlington's operational control. Costs for inventory elimination and decontamination of these tanks is not included in this plan.

2.3 Tanks Decontaminated and Removed

Tanks 115-118 and 165 (and associated ancillary equipment) were decontaminated in 1994 using the procedures described above and in Appendix 5. These tanks were certified closed by an independent professional engineer and were removed from the facility for salvage as scrap metal. Costs for inventory elimination and decontamination of these tanks is not included in this plan.

2.4 Tanks Requiring Completion of Decontamination

Tanks 112 is currently undergoing decontamination procedures described above and in Appendix 5. Closure of this tank will be certified by an independent professional engineer. Costs for inventory elimination and decontamination have been included in this plan.

3.0 MAXIMUM WASTE INVENTORY

This section describes the maximum extent of operations which have remained unclosed under interim status which are not covered under the Part B Closure Plan. The only inventory which remains to be disposed of under interim status is the residual contents of Tank 112. Costs for inventory elimination are provided in Appendix 7.

4.0 CLOSURE SCHEDULE

This section discusses the schedule for interim status closure activities at the Pier 91 facility which are not covered under final (Part B) closure. Burlington uses a trust fund to establish financial assurance for final closure of the facility. Funds reflecting the additional costs (described in this Closure Plan) of satisfying interim status closure will be added to the existing closure fund.

A sequential closure within the tank system is planned in accordance with the schedule described below. Any removal of the containment systems or soil which may be required will be addressed under final (Part B) closure, and/or the RCRA corrective action program currently underway.

Burlington will immediately notify Ecology in writing of its intent to close the area referred to in this closure plan upon receipt of approval of the Interim Status Closure Plan. Burlington will notify Ecology in writing at least 10 days prior to any background or closure performance sampling events.

Closure Schedule - Interim Status Portion of the Pier 91 Facility

The closure schedule has been revised to reflect the fact that inventory elimination and tank decontamination is only required for Tank 112. However, due to the large surface area of the secondary containment system requiring decontamination, closure of the interim status portion of the Pier 91 facility may take longer than 180 days after approval of the Closure

Plan. Therefore, Burlington may require an extension of the 180 day closure time allowance, depending on weather conditions or unforeseen incidents.

Interim Status Facility Closure

<u>Closure Step</u>	<u>Est. Time Required</u>	<u>Completion Date</u>
Inventory Elimination / Tank Decontamination	5 weeks	Week 5
Containment Pad Decontamination	3 weeks	Week 8
Containment Pad Sampling and Analysis	2 weeks	Week 10

If sampling and analysis indicate that containment pad or tank removal is required, this will be addressed under final closure of the Part B permitted facility and/or RCRA corrective action as our current lease arrangements do not allow Burlington to remove the pad or tanks until final closure.

5.0 CLOSURE ACTIVITIES

This section describes closure activities for the units described in this Closure Plan which are not covered under the final (Part B) closure plan.

5.1 Tank System Closure Procedure

The inventory in Tank 112 will be removed as described in Section 5.2, Inventory Elimination. When empty, decontamination will be performed and verified as described in Section 5.3, Decontamination Procedures. Decontamination of the secondary containment system for Tanks 109-112 will be addressed under final status.

For tanks which have already been decontaminated (Tanks 90, 94, 96-100, 105-108, and 114), the surface of the containment pad surrounding them will be decontaminated. If the containment pad cannot be successfully decontaminated according to procedures described in Section 5.3, it will be removed and sent to an off-site RCRA-permitted facility once final closure of the Part B facility is underway (if allowed under lease arrangements). An alternate procedure will be to break up the pad prior to any decontamination and dispose of it at an off-site RCRA-permitted facility at final closure.

All tanks are on ring-wall foundations with soil directly underneath. Contamination beneath the tanks (if any) could exist in the soil base within the ring wall and beyond. Clean up of this soil will be addressed under RCRA corrective action as described in Section 5.3.

5.2 Inventory Elimination

This section is a summary of the various treatment options that will be used to eliminate dangerous waste inventory during interim status closure. Detailed descriptions of the treatment processes and the facility can be found in the Permit Application Section B, Facility Description, and Section D, Process Information.

Dangerous waste inventory (including sludges) will be removed from tanks to the fullest extent practicable. Dangerous wastes processed during interim status closure will be processed in the same manner as they would be under normal operating circumstances. Dangerous waste treatment at the facility includes the following processes:

- Heat Treatment
- Chemical Oxidation
- Chemical Precipitation
- Chemical Reduction
- Neutralization
- Dewatering
- Centrifugation
- Clarification
- Decanting
- Flocculation
- Sedimentation
- Demulsification

Wastes which will require treatment and/or disposal include:

- Industrial waste sludges
- Rinsate generated during decontamination activities

Sludges and semi-solids are consolidated and then transported to an off-site RCRA-permitted facility, or they are processed through a centrifuge prior to off-site disposal. The liquid or filtrate is analyzed and treated, using one of the methods described above, based on the analytical results. Any decontamination-generated waste will be handled and managed as dangerous waste and treated and disposed of accordingly.

Rinsate generated during closure activities will undergo pH adjustment and flocculation. Rinsate will then be tested on a batch basis for compliance with the Pier 91 wastewater discharge permit and discharged to METRO. This analysis includes verification of pH levels, oil and grease composition, cadmium, chromium, copper, lead, nickel and zinc content, and batch volume.

5.3 Decontamination Procedures

This section describes the decontamination procedures to be used for interim status closure activities at the Burlington Pier 91 Facility. The following are general decontamination policies.

- No equipment used in interim status closure activities will be removed from the site until it has been decontaminated.
- All equipment which has come in contact with dangerous waste constituents during interim status closure activities will be decontaminated before use outside the contaminated area.
- During interim status closure, contaminated equipment, containment system components and structures will be decontaminated for salvage or beneficial use, or disposed of at an off-site RCRA-permitted facility.
- Any residues generated during decontamination activities will be handled in accordance with all applicable requirements of WAC 173-303-170 through 173-303-230. Decontamination rinsate will be appropriately treated on-site using methods described in Section 5.2, Inventory Elimination.
- All decontamination will be done by scraping and cleaning with either high pressure water, steam or a caustic-type industrial cleaning solution until the equipment and materials show no visible evidence of contamination. The decontamination method

and/or type of cleaning solution used will be selected based on the tank's previous contents and physical condition at the time of decontamination.

- Where removal or decontamination of dangerous waste management units, equipment, dangerous wastes or residues, or other materials is done, then the removal or decontamination will assure that the levels of dangerous waste or dangerous waste residues do not exceed:
 - 1) Background environmental levels, for any waste managed at the facility, which either is listed under discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and
 - 2) The designation limits for toxic, persistent, or carcinogenic dangerous wastes (WAC 173-303-100), for any dangerous waste managed at the facility which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.
- Clean-up levels developed under MTCA clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.

Tank 112 is the only remaining tank requiring decontamination at interim status closure. Secondary containment surfaces and sumps for Tanks 105-108, Tanks 113-118, the Black Oil Yard, and the Middle Yard will also be decontaminated. Additionally, all equipment used for closure activities will undergo decontamination. The secondary containment pads will also serve as decontamination staging areas during interim status closure. Decontamination procedures for the dangerous waste management units and decontamination equipment are described below, along with decontamination rinsate management procedures.

Tank System Decontamination

The decontamination procedures discussed in this section will be used for Tank 112 (and associated ancillary equipment) and will be in accordance with procedures presented in Appendix 5.

Tanks, pumps and piping will be triple rinsed using a high-pressure wash and an appropriate cleaning solution. Based on EPA guidance, rinsate is estimated to be generated at approximately 4 gallons per square foot for tanks and 50 gallons per pump for pumps and feedlines. (See Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H), Volume III: Unit Costs, Pope-Reid Associates, Inc., St. Paul, Minnesota for U.S. EPA, Washington D.C., November 1986, hereafter referred to as the Guidance Manual).

Rinsate and cleaning residue from all three washings will be managed as a dangerous waste. All rinsate will be collected in the cleaned tank and back flushed through the piping or removed between each rinse by a vacuum truck or equivalent means. Rinsate and cleaning residues from incompatible tanks will not be commingled. The collected rinsate will be appropriately treated on-site, or when necessary sent off-site for treatment and disposal at a RCRA-permitted facility, using methods described later in this section.

Decontaminated tanks will be left in place on the containment pad. As an alternative, tanks may be decontaminated and scrapped. Tanks to be decontaminated and scrapped will be rendered unusable prior to leaving the facility. This will be accomplished by cutting the tanks in half, or cutting the ends off of the tanks. Prior to removal of decontaminated tanks, written proof of decontamination will be obtained from the independent, registered, professional engineer.

As another alternative to decontamination and leaving tanks in place, tanks may be rinsed once and disposed as dangerous waste at an off-site RCRA-permitted facility. Tanks may also be decontaminated and re-used or sold for re-use.

Decontamination of Containment Pads

Decontamination procedures discussed here cover containment surfaces in the Black Oil Yard (Tanks 90, 91 and 92), Middle Yard (Tanks 93 through 104), and the secondary containment surrounding Tanks 113-118, 105-108, and 165. These procedures also apply to the sump systems throughout these areas.

At the time of interim status closure, all containment pads will be inspected prior to decontamination. Areas that show visual signs of past spillage will receive a preliminary cleaning with a wire brush or equivalent method. The containment pads will then be triple rinsed with a high pressure wash and an appropriate cleaning solution. Based on EPA guidance for tank system decontamination, rinsate is estimated to be generated at approximately 4 gallons per square foot (see Guidance Manual). This amount may vary depending upon the type of material managed in the containment system, decontamination rinse method, and containment system size.

Rinsate and cleaning residue from all three washings will be managed as a dangerous waste. All rinsate will be collected in the existing sump systems and removed between each rinse by a vacuum truck or equivalent means. Rinsate and cleaning residues from incompatible containment areas will not be commingled. The collected rinsate will be appropriately treated on-site, or when necessary sent off-site for treatment and disposal at a RCRA-permitted facility, using the methods described later in this section.

A small temporary decontamination area (approx. 10 feet by 20 feet) may be established on site once all concrete containment areas have been decontaminated. This area will be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling efforts. Releases from the temporary decontamination area will be prevented through use of a Visqueen ground cover (or equivalent material) placed on a concrete surface (with a temporary berm approx. 4" high on the outer edges of the Visqueen formed by rolling the plastic material over several pieces of lumber) and through proper management of decontamination rinsate and other materials to be sent off-site for treatment or disposal at a RCRA-permitted facility.

Equipment Decontamination

All equipment used for closure will be decontaminated via scraping and triple rinsing with a high-pressure washer before transport off site or use elsewhere on site. Equipment decontamination will be performed in a specific decontamination staging area with adequate containment. All rinsate from decontamination will be collected and treated appropriately at the facility or, when necessary, sent to an off-site RCRA-permitted facility. If equipment cannot be decontaminated it will be disposed of as dangerous waste at an off-site RCRA-permitted facility. The following is a list of example equipment potentially requiring decontamination.

Fork Lifts	Piping	Transfer Lines
Safety Equipment	Ladders	Steam Cleaning Equipment
Jackhammers	Tools	Pump Connections
Sampling Equipment	Hoses	Valve Connections
High Pressure Wash Equip.	Pumps	Decontamination Equipment (brushes, etc.)

Decontamination Rinsate Management

Rinsate from interim status closure decontamination activities will be collected and treated on-site whenever possible. Rinsing of tanks will take place within the secondary containment system. The following table describes the quantity of rinsate generated from each tank or containment system and the appropriate treatment of that rinsate.

<u>Tank/Area</u>	<u>Feet²</u>	<u>Rinsate Generated*</u>	<u>Rinsate Treatment/Disposal Method</u>
112	2,214	8,856 gal	pH adjustment, flocculation/precipitation sewer discharge, sludge treatment
Black Oil Yard Containment	24,996	99,984 gal	"
Middle Yard Containment	23,735	94,940 gal	"
Contain. by 105-108, 165	7,347	29,388 gal	"
Contain. by Tanks 113-118	3,453	13,812 gal	"
Total Rinsate Requiring On-Site Treatment and Discharge			= 246,980 gal

* Rinsate generated at a rate of 4 gal/sq. ft. of surface area, as described in this plan

5.4 Sampling and Analysis

This section describes the sampling and analysis procedures to be used for interim status closure activities at the Burlington Pier 91 Facility. Burlington will notify Ecology at least ten days prior to any background or interim status closure performance sampling events. Sampling and analysis of concrete containment applies to the Middle Yard, the Black Oil Yard, and the areas around Tanks 105-108, 165, and 113-118.

Containment Pad Sampling and Analysis

After triple rinsing for decontamination is completed, the concrete surface of the containment areas and related sumps will be sampled and analyzed to verify decontamination. Concrete chips will be collected to a depth of 1/2 inch from the containment area surface at a total of 46 biased and random sampling locations, as described below.

Sample collection, documentation and handling will be in accordance with standard procedures described in SW-846. Sampling locations will be identified in a sampling plan prepared by Burlington or its consultants at the time interim status closure commences. The sampling plan will be available for review by the independent engineer certifying closure.

All sumps in relevant secondary containment areas will be selected as biased sampling locations. There are a total of 27 sumps in the secondary containment areas: 13 within the

Middle Yard, four within the Black Oil Yard, five within the Tank 105-108 area, and five within the Tank 113-118 area.

Random sampling will be performed within each subdivided secondary containment area. In addition to the biased samples required to be taken within each containment system, random samples will be taken based on the additional square footage of these areas (1 per additional 3000 square feet). Subsequently, 19 additional random samples will be taken as follows: eight from the Middle Yard, eight from the Black Oil Yard, two from Tank 105-108 area, and one from Tank 113-118 area. Random sample locations will be selected in accordance with procedures described in Test Methods for Evaluating Solid Waste, SW-846, U.S. Environmental Protection Agency, November 1986. Random sampling locations within 5 feet of the biased sampling locations for sumps will be excluded from random sampling.

Concrete samples will be analyzed for constituents of waste historically managed within each particular containment area, using analytical methods described in SW-846. Concrete samples will also be analyzed for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met. Because a variety of materials were commonly handled in many of the containment areas to be sampled, the types of analyses to be conducted on samples from each containment area will be similar in many cases (see Section 7.5, Sampling and Analytical Costs).

The analytical results for the concrete chip samples will be evaluated for evidence of incomplete decontamination, i.e., that the closure performance standard has not been met. If analyses indicate contamination is still present in a segregated containment area after completion of the steps described above, high-pressure washing may be repeated for that area until concrete chip sample analyses indicate sufficient decontamination of the containment pad. Steam cleaning or a blasting technique may be used as an alternate method for additional cleaning to decontaminate secondary containment areas.

Areas where analysis of concrete samples indicates contamination is still present will be resampled after additional decontamination is complete. Areas not failing the closure demonstration will not be resampled. Results of the containment pad sampling will be submitted to Ecology prior to acceptance of the closure certification.

Analysis of the extra concrete samples taken after additional decontamination efforts will include only those constituents that failed closure in the initial sample set for that area. As an alternative to further decontamination, sampling, or analysis, secondary containment pads may be disposed as dangerous waste at an off-site RCRA-permitted facility (under lease arrangements).

If one of the containment pad removal alternatives is chosen, a plastic cover will be placed over the exposed soil to prevent dissipation of any volatile organic compounds which may be present, and to prevent contact with rainwater or other moisture which could promote leaching of possible contaminants through the soil. Soil sampling would be timed to occur after containment pad removal (if any) is complete in accordance with RCRA corrective action.

If disposal of secondary containment pads is chosen as an alternative to successful decontamination and leaving the pads in place, Ecology will be notified and the closure plan and closure cost estimates will be revised accordingly.

5.5 Soil and Groundwater Cleanup

Burlington has signed a 3008(h) Order with EPA to proceed with the clean up of the Pier 91 contamination which can be attributed to hazardous waste and hazardous waste constituents stored and processed by Burlington. The 3008(h) Order requires Burlington to conduct a RCRA Facility Investigation (RFI). The work described in the approved RFI, dated July 9, 1992, is ongoing. It is through this process that cleanup of soil and/or groundwater in the interim status facility will be addressed. Thus certification of closure completed under this closure plan by Ecology only incorporates the aboveground portion of the facility not included in the final (Part B) permit

Specific standards for addressing contamination of soil and groundwater will be established when the 3004(u) is implemented. All residues and materials generated or removed under the corrective action program will be managed as dangerous waste and treated and disposed of in a RCRA-permitted facility. The use of an independent, registered professional engineer is not required under corrective action. Both the EPA and Ecology have oversight of the corrective action program and all the work carried out in order to comply with both the 3008(h) and the 3004(u) are agreed upon actions which adequately address any contamination which may be present at the facility. Compliance with the orders and completion of all the work required will provide clean closure of the interim status facility, thus Ecology's and EPA's approval of the orders and work performed under them should be equivalent to certification by an independent, registered professional engineer.

6.0 POST-CLOSURE PLAN

Burlington has not operated dangerous waste disposal units at the Pier 91 Facility. The interim status facility includes adequate secondary containment, and thus will not be subject to the contingent post-closure requirements of 40 CFR 265.197(c)(2) and (c)(5). No dangerous waste residues or contaminated materials will be left in place upon final closure of the entire facility, therefore, a post-closure plan is not provided at this time. Should ongoing corrective action not fully address soil and groundwater contamination, a post-closure permit could be required.

7.0 CLOSURE COST ESTIMATES

This section presents the closure cost estimates for the portions of the Burlington Pier 91 Facility required to be closed under interim status. The cost estimates are based on current unit costs (in 1994 dollars) for inventory elimination, decontamination, sampling, and analysis as described in Section 5.0, Closure Activities.

7.1 Regulatory Requirements

The closure cost estimates are based on the maximum waste inventory calculated for the units which must be closed under interim status as they are not addressed in the Part B closure plan. The total estimated cost for closure of the interim status portion of the facility for the maximum waste inventory is in Table 1.0, Cost Estimates Reflecting Interim Status Closure at Maximum Waste Inventory. The costs are broken down further in Sections 7.3 through 7.5, and in Appendix 7.

The costs have been adjusted to 1994 dollars an annual inflation adjustment factor. Background cost data to support these estimates are provided in Appendix 6, Unit Costs and Assumptions and Appendix 7, Interim Status Closure Cost Calculations for Maximum Waste Inventory.

TABLE 1-0. COST ESTIMATES REFLECTING INTERIM STATUS CLOSURE AT MAXIMUM WASTE INVENTORY

Revised, January 1995

ITEM DESCRIPTION	COST (1994 \$\$)
Inventory elimination (tanks)	\$147
Tank Decontamination	\$3,885
Secondary Containment structure decontamination	\$109,529
Equipment decontamination	\$124
Rinsate treatment and disposal	\$20,448
Sampling/analysis (concrete)	\$30,866
Personal protective equipment	\$1,400
Engineering Certification	\$5,184
	<hr/>
	SUBTOTAL \$171,583
Contingency fee (10%)	\$17,158
	<hr/>
	TOTAL \$188,741
	<hr/>
MAXIMUM WASTE INVENTORY CLOSURE COST ESTIMATE	<u>\$188,741</u>

Until interim status closure is complete, Burlington will adjust the closure cost estimates annually to take inflation into account. The adjustments will be made by recalculating closure costs in current dollars or by using an inflation factor as specified in 40 CFR 265.142(b)(i) and (b)(ii) and WAC 173-303-620(3)(c).

The inflation adjustment will be made within 60 days prior to the anniversary date of the establishment of the financial assurance mechanism. The closure cost estimates also will be revised if a change in the Closure Plan increases the cost of closing the interim status portion of the facility. These cost revisions will be made within 30 days after agency approval of the change.

7.2 Unit Costs for Closure Activities

The unit costs associated with closure of the interim status portion of the Pier 91 Facility are based on the following:

- The unit costs for all closure activities are based on the cost of hiring a third party to close the interim status portion of the facility. A third party is someone other than the parent or subsidiary of the owner or operator. However, it is intended that trained site personnel will be used to conduct closure activities to the greatest extent possible.

- Cost estimates using third party costs include those for labor, equipment, and engineering certification. Specific examples of third party contractors which may be used for closure include contractors for off-site treatment and disposal of dangerous wastes, facility and equipment decontamination, tank and equipment removal, sampling and analysis of tanks and concrete, and monitoring of all closure activities by an independent registered professional engineer. Examples of qualifications for third party contractors include hazardous waste site workers trained in dangerous waste cleanup in compliance with OSHA standards (29 CFR Part 1910.120(e)) and job-specific training for their particular task, and outside consultants (including engineers) with demonstrated experience in closure of dangerous waste facilities and cleanup of dangerous waste sites.
- Unit costs were obtained, where possible, from actual operating costs and experience. Other sources used include the Guidance Manual and contractor estimates.
- Treatment costs are rates presently estimated for existing waste management units.

Specific information regarding the assumptions and procedures used to develop unit costs is provided in Appendix 6. The unit costs are listed in a table located in Appendix 6.

7.3 Inventory Elimination Costs

Inventory elimination cost estimates are based on the maximum waste inventory, and are summarized below. Calculations and unit costs for inventory elimination are presented in Appendix 7, Interim Status Closure Cost Calculations for Maximum Waste Inventory.

Industrial Waste Sludge	1,000 gal.	1,000 gal x 10 lb/gal x ton/2,000 lb = 5 tons
	loading: \$0.01/gal x 1,000 gal	= \$10
	transport: 5 tons x \$250/20 tons	= \$63
	expansion: 1,000 gal + 20% = 1,200 gal = 6 tons	
	stabilize/disposal: 6 tons x \$247/20 tons	= \$74
INVENTORY ELIMINATION COST - TOTAL		\$147

The assumptions involved in determining the unit costs for the elimination of these wastes are discussed below along with other identified means for determining unit costs.

Treatment costs will reflect current treatment costs using third party labor. All materials which are a part of this inventory have solidified and cannot undergo further treatment at this facility. The material will be drummed up and stabilized for landfill at an off-site RCRA-permitted facility. Unit transportation costs used for estimating inventory elimination costs are based on contractor estimates for transporting bulk sludges and liquids to an off-site RCRA-permitted disposal facility located approximately 400 miles from the Pier 91 facility.

Unit disposal costs for off-site stabilization and landfilling were obtained from facility operating experience and supplemented with information from the EPA's Guidance Manual.

7.4 Facility Decontamination Costs

The closure costs for decontamination of facility equipment and waste management units under interim status are included in this section. Specifically, cost estimates are included for decontamination of the following:

- Tank-112
- secondary containment structures
- equipment used during interim status closure

Cost estimates for rinsate decontamination have also been included in this section.

Tanks/treatment units, secondary containment structures, and equipment will be decontaminated by triple-rinsing with a high-pressure washer. For cost estimating purposes, it is assumed that pumps and piping will be decontaminated with a detergent triple-rinse. Tanks and equipment will be salvaged to the extent possible. However, salvage value has not been incorporated into the closure cost estimate. Costs for facility decontamination are summarized below. Additional contingency costs are also included to recognize the possibility of on-site treatment capacity being unavailable. Calculations for cost estimates are presented in Appendix 7, Interim Status Closure Cost Calculations for Maximum Waste Inventory.

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
<i>Tank decontamination</i>	44,657 gal.	\$0.087/gal	\$3,885
<i>Secondary containment structures - decontamination</i>			
Concrete high-pressure washing	59,531 ft ²	\$1.09/ft ²	\$64,889
Labor	1,488 man-hr	\$30/man-hr	\$44,640
<i>Heavy equipment high-pressure washing</i>			
Forklift	2	\$62/lift	\$124
<i>Rinsate treatment and disposal</i>			
Wastewater:	246,980 gal for on-site treatment		
pH adjust	246,980	\$0.07/gal	\$17,289
to discharge	246,980 x 89% = 219,812 gal		
water treatment:	246,980 x 11% = 27,168 gal		
wastewater	27,168 gal x 40% = 10,867 gal		
pH adjust	10,867 gal	\$0.07/gal	\$761
stabilization	27,168 gal x 60% = 16,301 gal		
loading	16,301 gal	\$0.01/gal	\$163
	16,301 gal x 10 lb/gal x ton/2,000 lb = 82 tons		
transport	82 tons	\$250/20 tons	\$1,025
expansion	16,301 gal + 20% = 19,561 gal = 98 tons		
stabilize/disposal	98 tons	\$247/20 tons	\$1,210
TOTAL FACILITY DECONTAMINATION COST =			\$133,986

7.5 Sampling and Analytical Costs

Items which will require sampling and analysis are the secondary containment areas for Tanks 105-108 and 165, Tanks 113-118, the Black Oil Yard, and the Middle Yard. All other containment areas, soil and groundwater are covered under final (Part B) closure and RCRA corrective action. Costs for sample collection and analysis are summarized below.

Concrete chip samples from secondary containment areas will be taken from a total of 46 biased and random sampling locations. Concrete chip samples will be collected after triple-rinsing for decontamination is complete. The samples will be analyzed for constituents of wastes historically managed within each particular containment area, using analytical methods described in SW-846. Analyses listed below include constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the interim status closure performance standard has been met.

SAMPLING AND ANALYTICAL COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST (1994 \$\$)
Concrete samples - collection	46 samples	\$26/sample	\$1,196
Concrete samples - analysis	46 samples	\$645/sample for semi-volatiles, TCLP metals, BTEX, PCBs, and total petroleum hydrocarbons	\$29,670
TOTAL SAMPLING AND ANALYSIS COSTS =			\$30,866

8.0 FINANCIAL ASSURANCE MECHANISM

A trust agreement to assure that funds are available for final closure of facility was established by Burlington. The trust agreement was amended in 1986 to indicate the change of administering agency [from U.S. EPA to Ecology] and to revise the trust agreement to conform to the regulations of Ecology in other respects. Any additional funding required to complete interim status closure (hence the cost estimate from this plan) will be added to this existing fund when the annual inflation adjustment is made. A copy of the trust agreement is included in the Part B Permit Application and is available upon request.

9.0 LIABILITY REQUIREMENTS

Burlington has provided demonstration of financial responsibility for bodily injury and property damage for sudden accidental occurrences arising from operations of its facilities. A copy of the company's certificate of liability insurance was included in the Part B Permit Application and is available upon request.

This demonstration of financial responsibility has been obtained under interim status requirements (40 CFR 265.147) and final status requirements (40 CFR 264.147 and WAC

173-303-620). In the event of bankruptcy of the trustee or institution issuing a trust fund, surety bond, letter of credit, or insurance policy, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing such instruments, Burlington will establish other financial assurance or liability coverage within 60 days after such an event.

Burlington will notify Ecology by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), United States Code, naming Burlington as debtor, within 10 days after commencement of the proceedings.

APPENDIX 6

UNIT COSTS AND ASSUMPTIONS

APPENDIX 6

UNIT COSTS AND ASSUMPTIONS

The assumptions and procedures used to develop unit costs for interim status closure cost estimates are as follows:

1. Cost estimates include all activities associated with closure of the interim status portions of the facility not covered under the final Part B permit. Costs associated with treatment of dangerous waste inventories through the individual waste management units also are included as part of the cost estimate.
2. The processing of the dangerous wastes within the facility and individual waste management units will be performed using the same procedures as the facility would normally use to process the wastes.
3. Although costs reflect the use of third parties to close the interim status portion of the facility, it is intended that closure will be performed by trained Burlington technicians familiar with the various processing units.
4. Supplies and equipment will be salvaged to the extent possible. However, salvage value has not been incorporated into the closure cost estimate.
5. Burlington's on-site equipment will be used where possible. Outside contractor's equipment will be used as necessary.
6. Costs for decontaminating sampling equipment between samples is considered negligible.
7. Estimated man-hours needed to perform closure activities and unit cost estimates are based on Burlington's previous experience and best estimates, and on the EPA guidance document: Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H) Volume III - Unit Costs. Costs obtained from the Guidance Manual were adjusted to 1994 dollars by appropriate inflation factors.

UNIT COSTS FOR CLOSURE ACTIVITIES

<u>ITEM DESCRIPTION</u>	<u>1988 UNIT COST</u>	<u>SOURCE</u>
Operator labor	\$30/hr.	<u>Guidance Manual</u>
Tank decontamination	\$0.087/gal of tank	Contractor estimate
High-pressure washing	\$1.09/ft ²	<u>Guidance Manual</u>
Equipment decontamination forklift	\$62/forklift	<u>Guidance Manual</u>
Concrete sample	\$26/sample	Facility operating experience
Professional Engineer	\$72/hr.	<u>Guidance Manual</u>

APPENDIX 7

INTERIM STATUS CLOSURE COST CALCULATIONS FOR MAXIMUM WASTE INVENTORY

APPENDIX 7

INTERIM STATUS CLOSURE COST CALCULATIONS FOR MAXIMUM WASTE INVENTORY

A. Inventory Elimination Costs for Maximum Waste Inventory

Industrial Waste Sludge (To be sent to an off-site RCRA-permitted disposal facility)

Quantity: Tank 112 = 1,000 gallons

1,000 gal.	1,000 gal x 10 lb/gal x ton/2,000 lb = 5 tons	
	loading: \$0.01/gal x 1,000 gal	= \$10
	transport: 5 tons x \$250/20 tons	= \$63
	expansion: 1,000 gal + 20% = 1,200 gal = 6 tons	
	stabilize/disposal: 6 tons x \$247/20 tons	= \$74

TOTAL MAXIMUM WASTE INVENTORY ELIMINATION COST	\$147
---	--------------

B. Facility Decontamination Costs

The following cost estimates are summarized on page 20.

1. Tank Decontamination

Unit Cost = \$0.087/gallon (contractor estimate)

Tank 112	44,657 gal. x \$0.087	= \$3,885
----------	-----------------------	-----------

TOTAL TANK DECONTAMINATION COST	= \$3,885
--	------------------

2. Secondary Containment Structure Decontamination

Concrete pads and sumps will be high-pressure washed.
Unit costs from Guidance Manual.

Unit cost = \$1.09/ft.² at 40 ft²/hr.

Black Oil Yard: surface area = 24,996 ft.²

- high pressure washing
24,996 ft.² x \$1.09/ft.² = \$27,246

- labor
(24,996 ft.²)/(40 ft.²/hr.) x 1 man
= 625 man-hr.
625 man hr. x \$30/hr. = \$18,750

Middle Oil Yard: surface area = 23,735 ft.²

- high pressure washing
23,735 ft.² x \$1.09/ft.² = \$25,871

- labor
(23,735 ft.²)/(40 ft.²/hr.) x 1 man
= 593 man-hr.
593 man-hr. x \$30/hr. = \$17,790

Yard by Tanks 113-118: surface area = 3,453 ft.²

- high pressure washing
3,453 ft.² x \$1.09/ft.² = \$3,764

- labor
(3,453 ft.²)/(40 ft.²/hr.) x 1 man
= 86 man-hr.
86 man-hr. x \$30/hr. = \$2,580

Yard by Tanks 105-108, and 165: surface area = 7,347 ft.²

- high pressure washing
7,347 ft.² x \$1.09/ft.² = \$8,008

- labor
(7,347 ft.²)/(40 ft.²/hr.) x 1 man
= 184 man-hr.
184 man-hr. x \$30/hr. = \$5,520

Total area = 59,531 ft.²

TOTAL SECONDARY CONTAINMENT DECONTAMINATION COST = \$109,529

3. Decontamination of Equipment

Unit costs for decontaminating heavy equipment and for mobilization/demobilization obtained from the Guidance Manual. Equipment is decontaminated by steam cleaning. Residual generated at a rate of 100 gallons/hr. Assume this quantity to be negligible. Assume that facility-owned forklifts will be used.

Forklift decontamination cost = \$62/forklift x 2 forklifts = \$124

4. Decontamination Rinsate Treatment and Disposal

The following describes the quantities of rinsate generated during decontamination.

<u>Tank No.</u>	<u>Rinsate Square Feet</u>	<u>Generated (GAL) *</u>
112	2,214	8,856
Black Oil Yard Containment	24,996	99,984
Middle Yard Containment	23,735	94,940
Containment by Tanks 105-108, 165	7,347	29,388
Containment by Tanks 113-118	3,453	13,812
Total Rinsate Requiring On-Site Treatment and Discharge		= 246,980 gallons

Wastewater:	246,980 gal for on-site treatment	
pH adjust	246,980	\$0.07/gal
to discharge	246,980 x 89% = 219,812 gal	\$17,289
water treatment:	246,980 x 11% = 27,168 gal	
wastewater	27,168 gal x 40% = 10,867 gal	
pH adjust	10,867 gal	\$0.07/gal
stabilization	27,168 gal x 60% = 16,301 gal	\$761
loading	16,301 gal	\$0.01/gal
	16,301 gal x 10 lb/gal x ton/2,000 lb = 82 tons	\$163
transport	82 tons	\$250/20 tons
expansion	16,301 gal + 20% = 19,561 gal = 98 tons	\$1,025
stabilize/disposal	98 tons	\$247/20 tons
		\$1,210

TOTAL RINSATE TREATMENT AND DISPOSAL COST	=	\$20,448
---	---	----------

TOTAL FACILITY DECONTAMINATION COST	=	\$133,986
-------------------------------------	---	-----------

C. Miscellaneous Costs

1. Personal Protective Equipment

It is assumed that 10 workers will need personal protective equipment including total body coveralls, gloves, goggles, respirator (half-mask), and hard hat at a cost of \$140 per worker.

$$10 \text{ workers} \times \$140/\text{worker} = \$1,400$$

2. Engineering Certification

Unit cost obtained from the Guidance Manual for professional engineer (\$72/hr). Assume engineer visits the site once per week during closure period at six hours/visit. Estimated period is 10 weeks.

$$1 \text{ visit/wk.} \times 10 \text{ wk.} \times 6 \text{ hr./visit} \times \$72/\text{hr.} = \$4,320$$

Assume an additional eight hours for review of Closure Plan and four hours for preparation of final documentation.

$$(8 \text{ hr.} + 4 \text{ hr.}) \times \$72/\text{hr.} = \$864$$

$$\text{Total Engineering Costs} = \$5,184$$

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. 115

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with the approved Part B Closure Plan and the Interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303-610.

DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 172-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature: 

Date: 8/17/94

Company: Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Ken Murphy, Operations Manager (BEI)

Signature: 

Date: 8/19/94

Telephone: (206) 872-8030

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. 116

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with the approved Part B Closure Plan and the Interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303-610.

DESCRIPTION OF DECONTAMINATION:

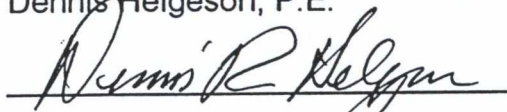
The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 172-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature:



Date:

8/17/94

Company:

Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Ken Murphy, Operations Manager (BEI)

Signature:



Date:

8/19/94

Telephone: (206) 872-8030

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. 117

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with the approved Part B Closure Plan and the Interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303-610.

DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 172-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature: Dennis Helgeson

Date: 8/17/94

Company:

Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Ken Murphy, Operations Manager (BEI)

Signature: Ken Murphy

Date: 8/19/94

Telephone: (206) 872-8030

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. 118

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with the approved Part B Closure Plan and the Interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303-610.

DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 172-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature: 

Date: 8/11/94

Company:

Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Ken Murphy, Operations Manager (BEI)

Signature: 

Date: 8/11/94

Telephone: (206) 872-8030



**West Pac
Environmental,
Inc.**

Nº 4776

CLEANING CERTIFICATE

THIS IS AN ON-SITE CLEANING CERTIFICATE. CERTIFICATE INDICATES THAT THE FOLLOWING TANK(S) HAS(HAVE) BEEN CLEANED AND TRIPLE RINSED IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS:

<u>QTY.</u>	<u>GALLONAGE</u>	<u>DESCRIPTION</u>
1	20,000	Land storage tank #118

WPEI JOB # 30-37120

TRUCK # 71

DRIVER SIGNATURE

Floyd Rider

DATE 8/12/94

SITE INFORMATION

COMPANY: Burlington Environmental

ADDRESS: Per 91

CUSTOMER SIGNATURE

DATE

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. 165

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with the approved Part B Closure Plan and the Interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303-610.

DESCRIPTION OF DECONTAMINATION:

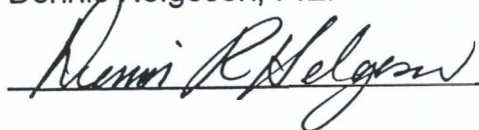
The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 172-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature:



Date:

8/17/94

Company:

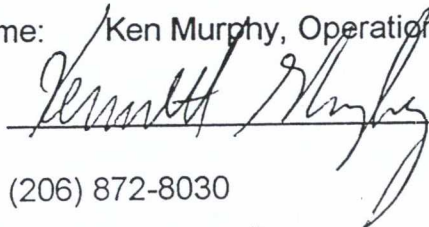
Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name:

Ken Murphy, Operations Manager (BEI)

Signature:



Date:

8/19/94

Telephone: (206) 872-8030

CERTIFICATION OF TANK DECONTAMINATION

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA 98119

TANK NO. Ancillary Equipment for
tank 115, 116, 117, 118,
and 165 (Approx. 55' ft

This equipment decontamination assessment has determined that the above listed ancillary equipment was adequately cleaned in accordance with the approved Part B Closure Plan and the interim Closure Plan. The Closure Plans meet the requirements of WAC 173-303.

DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure washing was utilized on this equipment in accordance with procedures in the Closure Plans. All rinsate generated was handled in accordance with all applicable requirements of WAC 173-303.

CERTIFICATION STATEMENT

" I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 173-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature: _____

Date: 8/17/94

Company: _____

Corrosion Control Specialists
6642 South 193rd Place
Kent, WA 98032

Telephone: (206) 251-8074

Operator Name: Ken Murphy, Operations Manager (BEI)

Signature: _____

Date: 8/19/94

BLOCH STEEL INDUSTRIES
 Division of M. Bloch & Co. Inc.
 4580 Colorado Ave. S. Seattle, WA 98134

Aug 22 19 94

206 / 763-0200

No. 170 LOAD OF Scrap Tank

FROM Burlington Enviro

TO M. Bloch & Co. Inc.

GROSS 40560

TARE 31980

NET 8580

DRIVER ON X

DRIVER OFF

WEIGHER Don

BLOCH STEEL INDUSTRIES
 Division of M. Bloch & Co. Inc.
 4580 Colorado Ave. S. Seattle, WA 98134

Aug 22 19 94

206 / 763-0200

No. 170 LOAD OF Scrap Tank

FROM Burlington Enviro

TO M. Bloch & Co. Inc.

GROSS 40,580

TARE 32,140

NET 8,440

DRIVER ON X

DRIVER OFF

WEIGHER Don

BLOCH STEEL INDUSTRIES
 Division of M. Bloch & Co. Inc.
 4580 Colorado Ave. S. Seattle, WA 98134

Aug 22 19 94

206 / 763-0200

No. 170 LOAD OF Scrap Tank

FROM Burlington Enviro

TO M. Bloch & Co. Inc.

GROSS 40,400

TARE 32,400

NET 9,000

DRIVER ON X

DRIVER OFF

WEIGHER Don

BLOCH STEEL INDUSTRIES
 Division of M. Bloch & Co. Inc.
 4580 Colorado Ave. S. Seattle, WA 98134

Aug 22 19 94

206 / 763-0200

No. 170 LOAD OF Scrap Tank

FROM Burlington Enviro

TO M. Bloch & Co. Inc.

GROSS 40,680

TARE 31,900

NET 8,780

DRIVER ON X

DRIVER OFF

WEIGHER Bill

CERTIFICATION OF TANK DECONTAMINATION
per 40 CFR Part 265.111(b)

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA. 98119

TANK NO. 109 (T-2705)

TANK NAME: Industrial Wastewater Treatment/Storage
SYSTEM: Existing Dangerous Waste Area
VESSEL FLUID: Industrial Wastewater contaminated with metals

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with treatment standards specified in 40 CFR Part 268 and current closure guidance of the Washington Department of Ecology.

A. DOCUMENTS USED FOR EVALUATION:

1. 40 CFR Part 268.45, "Treatment standards for hazardous debris".
2. Federal Register, Vol. 57, No. 6, 1/9/92 - Proposed Rule - Land Disposal Restrictions for Newly Listed Wastes and Contaminated Debris; p. 1034 (Appendix IX - Requirements for Effective Treatment - Water Washing and Spraying).
3. Correspondence from the Washington Department of Ecology - Southwest Regional Office, dated 6/28/94; guidance for a temporary change in service of a dangerous waste tank.
4. Burlington Environmental Inc. Pier 91 Facility Unit Closure Plan (Part B version).

B. DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with closure guidance provided by the Washington Department of Ecology. Burlington met and/or exceeded the design and operating parameters suggested by the Environmental Protection Agency for this treatment technology (attached) during this operation. A clean debris surface, defined in 40 CFR 268.45 Footnote 3 of Table 1, was achieved for the tank(s) in question.

C. COMMENTS:

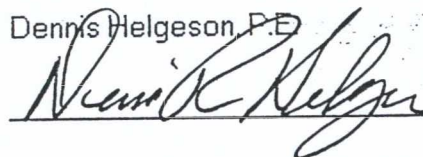
CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 173-303-810(13)(a)

Name:

Dennis Helgeson, P.E.

Signature:

 Date: 12/9/94

Company:

Corrosion Control Specialists
6642 South 193rd Place
Kent WA. 98032

Telephone: (206) 251-8074

Operator Name:

Julie Slocum, Plant Supervisor

Signature:

 Date: 12/9/94

Telephone: (206) 284-2450

HIGH PRESSURE WATER SPRAYS

Debris Type

Performance Standard

All debris types

Treatment must be performed in accordance with the design and operating parameters below.

Design and Operating Parameters

Pump Power	≥ 0.75 kilowatts
Pump Flow Rate	≥ 7.5 liters per minute
Treatment Enclosure	Fully enclosed or vacuum nozzle
Treatment Enclosure Pressure	Negative
Water Spray Pressure	≥ 700 kilopascals
Spray Pattern Width	≤ 25 cm
Treatment Rate	≤ 140 square meters per hour per nozzle
Treatment Quality	All visible staining removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Requirements

None.

CERTIFICATION OF TANK DECONTAMINATION
per 40 CFR Part 265.111(b)

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA. 98119

TANK NO. 110 (T-2706)

TANK NAME: Oil/Coolant Heated Treatment/Storage

SYSTEM: Existing Dangerous Waste Area

VESSEL FLUID: Oil/Coolant Emulsions contaminated with metals, phenolics

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with treatment standards specified in 40 CFR Part 268 and current closure guidance of the Washington Department of Ecology.

A. DOCUMENTS USED FOR EVALUATION:

1. 40 CFR Part 268.45, "Treatment standards for hazardous debris".
2. Federal Register, Vol. 57, No. 6, 1/9/92 - Proposed Rule - Land Disposal Restrictions for Newly Listed Wastes and Contaminated Debris; p. 1034 (Appendix IX - Requirements for Effective Treatment - Water Washing and Spraying).
3. Correspondence from the Washington Department of Ecology - Southwest Regional Office, dated 6/28/94; guidance for a temporary change in service of a dangerous waste tank.
4. Burlington Environmental Inc. Pier 91 Facility Unit Closure Plan (Part B version).

B. DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with closure guidance provided by the Washington Department of Ecology. Burlington met and/or exceeded the design and operating parameters suggested by the Environmental Protection Agency for this treatment technology (attached) during this operation. A clean debris surface, defined in 40 CFR 268.45 Footnote 3 of Table 1, was achieved for the tank(s) in question.

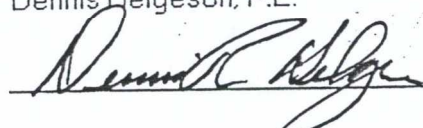
C. COMMENTS:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 173-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature:



Date:

11/16/94

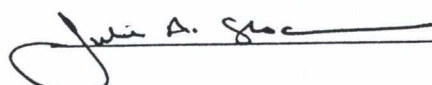
Company:

Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Julie Slocum, Plant Supervisor

Signature:



Date:

11-15-94

Telephone: (206) 284-2450

HIGH PRESSURE WATER SPRAYS

Debris Type

Performance Standard

All debris types

Treatment must be performed in accordance with the design and operating parameters below.

Design and Operating Parameters

Pump Power	≥0.75 kilowatts
Pump Flow Rate	≥7.5 liters per minute
Treatment Enclosure	Fully enclosed or vacuum nozzle
Treatment Enclosure Pressure	Negative
Water Spray Pressure	≥700 kilopascals
Spray Pattern Width	≤25 cm
Treatment Rate	≤140 square meters per hour per nozzle
Treatment Quality	All visible staining removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Requirements

None.

CERTIFICATION OF TANK DECONTAMINATION
per 40 CFR Part 265.111(b)

Burlington Environmental Inc.
Pier 91 Facility
2001 West Garfield Street
Seattle, WA. 98119

TANK NO. 111 (T-2707)

TANK NAME: Industrial Wastewater Treatment/Storage

SYSTEM: Existing Dangerous Waste Area

VESSEL FLUID: Industrial Waste waters contaminated with metals

This tank decontamination assessment has determined that the above listed tank(s) was adequately cleaned in accordance with treatment standards specified in 40 CFR Part 268 and current closure guidance of the Washington Department of Ecology.

A. DOCUMENTS USED FOR EVALUATION:

1. 40 CFR Part 268.45, "Treatment standards for hazardous debris".
2. Federal Register, Vol. 57, No. 6, 1/9/92 - Proposed Rule - Land Disposal Restrictions for Newly Listed Wastes and Contaminated Debris; p. 1034 (Appendix IX - Requirements for Effective Treatment - Water Washing and Spraying).
3. Correspondence from the Washington Department of Ecology - Southwest Regional Office, dated 6/28/94; guidance for a temporary change in service of a dangerous waste tank.
4. Burlington Environmental Inc. Pier 91 Facility Unit Closure Plan (Part B version).

B. DESCRIPTION OF DECONTAMINATION:

The physical extraction technology of high pressure water spraying was utilized on this tank(s) in accordance with closure guidance provided by the Washington Department of Ecology. Burlington met and/or exceeded the design and operating parameters suggested by the Environmental Protection Agency for this treatment technology (attached) during this operation. A clean debris surface, defined in 40 CFR 268.45 Footnote 3 of Table 1, was achieved for the tank(s) in question.

C. COMMENTS:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." WAC 173-303-810(13)(a)

Name: Dennis Helgeson, P.E.

Signature:  Date: 10/25/94

Company: Corrosion Control Specialists
6642 South 193rd Place
Kent, WA. 98032

Telephone: (206) 251-8074

Operator Name: Julie Slocum, Plant Supervisor

Signature:  Date: 10/28/94

Telephone: (206) 284-2450

HIGH PRESSURE WATER SPRAYS

Debris Type

Performance Standard

All debris types

Treatment must be performed in accordance with the design and operating parameters below.

Design and Operating Parameters

Pump Power	≥0.75 kilowatts
Pump Flow Rate	≥7.5 liters per minute
Treatment Enclosure	Fully enclosed or vacuum nozzle
Treatment Enclosure Pressure	Negative
Water Spray Pressure	≥700 kilopascals
Spray Pattern Width	≤25 cm
Treatment Rate	≤140 square meters per hour per nozzle
Treatment Quality	All visible staining removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Requirements

None.